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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/749,127 | 12/30/2003 | Marco Ronchi | SCH041BUS/BF/jf (2110-98- | 3289 |
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| GRAYBEAL, JACKSON, HALEY LLP 155 - 108TH AVENUE NE SUITE 350 BELLEVUE, WA 98004-5973 | | | | EXAMINER COLE, BRANDON S |
| | | | ART UNIT 4125 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

| | |
|-----------------|---------------|
| Application No. | RONCHI ET AL. |
| Examiner | Art Unit |
| Brandon S. Cole | 4125 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 December 2003.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-3, 16, 17, 19 and 23-27 is/are rejected.
7) Claim(s) 4-15, 18, 20-22 and 28-30 is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
10) The drawing(s) filed on 20 December 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) Notice of Informal Patent Application
6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1, 3, 16, 17, 23, 25, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Toda et al (US 4,672,236).

As to claim 1, Toda et al's figure 1 shows a signal receiver (17, 20) inserted between a first and a second input terminal effective to receive differential signal and an output terminal effective to provide a converted signal, characterized in that it comprises a conversion stage (17) inserted between said first and second voltage references (these pins are left out of the diagram for clarity, and the power configuration is described or assumed from the circuit, refer to http://en.wikipedia.org/wiki/Op_amp) and connected between said first and second input terminals of said signal receiver and an input terminal of an hysteresis comparator (20), connected in turn to said output terminal of said signal receiver, said conversion stage performing a conversion from any signal received on respective input terminals to an intermediate signal provided on an output terminal and suitable for reception by said hysteresis comparator.

As to claim 3, Toda et al's figure 1 (17) shows the conversion stage, which is designed using an operational amplifier (18). In order for the operational amplifier to operate, its two input terminals have to be supplied with dc currents, termed bias

currents. Therefore, the conversion stage is connected to a bias terminal effective to receive a bias current.

As to claim 16, Toda et al's figure 1 (20) shows a hysteresis comparator, which, is just another name for a Schmitt trigger (Refer to www.ee.nmt.edu/~thomas/ee321/op-amp-ex-pos.html).

As to claim 17, Toda et al's figure 1 (17, 20) shows a converter having a first and second input terminals adapted to receive respective input signals and a bias input adapted to receive a bias current, the convert operable to develop an intermediate output in response to the input signals and the intermediate signal have hysteresis (node connected to 16) that is a function of the bias current. Figure 1 (20) shows a hysteresis comparator coupled to the intermediate output of the converter (17) to receive the intermediate signal, and the hysteresis comparator operable to develop a trigger signal in response to the intermediate signal.

As to claim 23 and 25, the claims recite similar limitations of claim 17. Therefore the claims are rejected for the same reason.

As to claim 27, Toda et al inherently necessitates the limitations of claim 1. A convention operational amplifier is made up of current mirrors (Refer to <http://www.uoguelph.ca/~antoon/gadgets/741/741.html>, figure uA741)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 4125

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 2 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Toda et al (US 4,672,236) as applied to claim 1 above, and further in view of Pioppo (US 6,269,388)

As to claim 2, Toda et al figure 1 shows a signal receiver (17, 20) with a conversion stage (17) that performs an ALL-INPUT/single-ended conversion but fails to show that the conversion stage generates a trapezoidal signal. However, Pioppo's figure 3 shows the claimed trapezoidal signal (V_C) and teaches in column 2, lines 16–31 that the advantage for generating a trapezoidal signal is that it can be precisely amplitude-modulated, highly reliable, and relatively easy to manufacture at competitive costs. Therefore, it would have been obvious to one having ordinary skill in the art, at the time of the invention, to use Pioppo's conversion stage in place of Toda et al's conversion stage for the purpose of generating a trapezoidal signal.

As to claim 19, the claim recites similar limitations of claim 2. Therefore the claim is rejected for the same reason.

Art Unit: 4125

Claim 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toda et al (US 4,672,236) in view of Khorram (US 6,801,761). Toda et al's figure 1 (17, 20) shows integrated circuit comprising of a signal receiver but fails to show a digital signal processor that can process the trigger signal from the receiver. However, Khorram figure 2 shows a digital signal processor (64) operable to process the trigger signal from the digital receiver. Khorram teaches in column 5, lines 29-38 that a digital receiver may be implemented using a processing device such as a digital signal processor. A digital signal processor is an example of a computer system (<http://en.wikipedia.org/wiki/Computer>). Therefore, it would have been obvious to one having ordinary skill in the art, at the time of the invention, to use a digital signal processor to process the trigger signal from the digital signal receiver.

Allowable Subject Matter

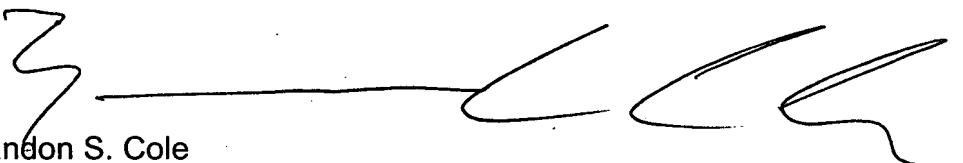
6. Claims 4–15, 18, 20–22, 28-30 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon S. Cole whose telephone number is (571) 270-5075. The examiner can normally be reached on Mon - Fri 7:30-5:00 EST (Alternate Friday's Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on (571) 272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Brandon S. Cole



CHARLES D. GARBER
SUPERVISORY PATENT EXAMINER